

Santee Cooper IRP | General Notice Meeting #4

This Q&A Summary documents the questions and comments that were asked, and the responses that were provided in the Q&A window during the IRP meeting. The questions and written answers are generated by the Zoom platform. The live answers are transcribed from the recording and are an attempt to capture each as closely as possible, as it was provided. All live answers have been edited for readability and may have been reordered to connect conversations. [Square brackets] are used to identify post-meeting ammendments or restated questions and material references.

Question Details

#	Questions, Follow-on Questions, Comments or Input	Asked by	Response Type by Whom	Responses
1	While the recently implemented residential demand charges send a price signal to reduce peak, the reduced energy charges may have the opposite effect for energy sales in the econometric model—did you find this to be true? Thanks. [Read aloud by Stewart Ramsay]	Eddy Moore	live by Carl Ciullo	Let me, let me think about that for a sec. So, Eddy, what I think I hear you say is that, the price signal decreasing demands may inadvertently decrease energy as well? Is that a fair? If that's your question, the answer is no, because the way the model functions is actually using -- it forecasts energy, and then the demand is actually implicit from that, not the other way around. So that price signal doesn't impact the model explicitly, that's sort of why we had to do a post modeling adjustment.
2	Thanks—I couldn't find the mic button	Eddy Moore	live by Eddy Moore	That's a good question.
	So, it seems to me like the marginal price signal, if you focus in on the kilowatt hour charge for residential, that it is, it is less than it would have been if there were not a new demand charge.	Eddy Moore	live by Carl Ciullo	
	I know there's limited price elasticity, maybe I've heard plus or minus 10%. But I'm just wondering, did the did the energy forecast possibly go up a little bit because of that kilowatt hour charge not being as high as it would have been?	Eddy Moore	live by Carl Ciullo	That's a good question, and I'll need to research that to get you a comprehensive answer. But, to provide a quick answer, I think the answer is no. And the reason for that is twofold: the first is because the demand rates are so new, we don't have a great historical data set to sort of see how elasticity has changed with the new three-part rates, and also our elasticity of demand is quite low. I think I need to double check this, but I think it's less than 5%, not the 10% that you mentioned.
	Okay. Thanks.	Eddy Moore		

RH	You might have answered this before, but that large load 75% projection that was 377 megawatts peak, if you had used the 50% projection method, how much difference did that make?	Eddy Moore	live by Carl Ciullo	So the NCP to CP ratio is constant, so that is a 9% haircut, if you're using the 100th percentile or the first percentile. So it would just shave it by 9% regardless of where you are in the distribution.
	So if it were a 50% projection, would it be the median load?	Eddy Moore	live by Carl Ciullo	Yes.
	Not the mean, but the median?	Eddy Moore	live by Carl Ciullo	Oh, no, I'm sorry. I think I'm misspeaking. The haircut from the NCP to CP is not a function of the model. It's exogenous, it doesn't change, it doesn't change based on where you land.
	I guess. Maybe I'm not following. I'm not talking about the haircut due to being on coincident peak versus non-coincident peak. I'm talking about the change from last year's methodology of using P50 to the change of being P75.	Eddy Moore	live by Carl Ciullo	I don't know that I'm following Eddy. Can you restate your question?
	Well, you had explained that because of the long tail, there's a risk of not building enough generation, and so you're, so Santee Cooper's using the P75 case, and in the past I think it used a P50 case -- and so I was asking, how much difference does that make in, for instance, the 2031 or 2032 time frame?	Eddy Moore	live by Carl Ciullo	I understand. It does not have a huge impact. It matters by, I think, less than 80 megawatts in the pre-2030 timeframe. But it is substantial, because what that essentially saying is that, the loads that you are really confident in come on early, and a lot of that tail risk sort of happens out in the later years, so the early years are impacted less than the later years. Is that responsive to your question, Eddy?
	It is, but the reason I was asking about 2032 is, you know, with the long lag time on getting gas generation built, and the fact that we're the current plan is to, is you know, most immediately to build for 2032, it seems to me like the risk of not serving a higher load level is primarily in that window out to 2032. So I guess that's why I was asking, it's an 80 megawatt difference.	Eddy Moore	live by Stewart Ramsay	Carl, if I'm not mistaken, so Greg and I were chatting on the side, I think the answer is on the slide, right? The P75 is 404, and then you've got the mean and the median, and so there's the delta before the haircut for coincident peak, non-coincident peak. And so I don't remember whether the median or the mean is the P50, but there's the order of magnitude. Eddy, it's 200 megawatts or less.
	That's kind of what I was guessing, is somewhere in the 200 megawatt range.	Eddy Moore	live by Stewart Ramsay	That's just looking at the raw number itself, not adjusting for peak to CP.
	So it could be 180.	Eddy Moore	live by Stewart Ramsay	It could, yeah, but it's in that neighborhood. Sorry, Carl, I hope I didn't put inappropriate words, your mouth. I think that's right. so it's, you know, it's not 1000s of megawatts.
			live by Carl Ciullo	No, and you know, to provide some context, Stewart, when we did this in 2024 that delta was, I think, closer to 700 or 1000 megawatts. It was really substantial. So, it's declined a lot. It's a much narrower band in sort of that inner quartile range than it was.

	Thanks.	Eddy Moore		
RH	Yeah, so the cumulative savings, I think generally if you graph them out over time, they rise, and then they kind of make a peak, and then they fall off due to roll off. And so I'm wondering, since this is a 20 year number we're looking at here, when is the when does that cumulative savings peak, and what is the number in that year or those years?	Eddy Moore	live by Steven Roys	Yeah, I'd have to look. I think we'd have to sort of look at this like on an individual year accumulation of every individual year, but I think the next, or maybe a few slides from now, there is a graph that has savings on an annual basis, which may be what you're getting at. It doesn't consider, you know, the measure lives as well in that graph, but it does sort of show when we think there's going to be more savings and when we think there's going to be less savings, if that's, if that's what your question is.
	Well, maybe this is the way to ask it: is the 20th year the highest year for cumulative savings?	Eddy Moore	live by Steven Roys	I would have to go back and double check. I don't know that it would be the absolute highest. It would probably be somewhere around there, because we, we sort of peak around 2029 through 2033 in savings. So everything that has a long measure life, you know, if it comes online in 2029 we're still going to be seeing that the savings in 2040. But I would have to pull to a chart of sort of all all of the years to see exactly when the peak would be.
	Thank you.	Eddy Moore		
RH	Is that updated water heater rule accounted for in the load forecast?	Eddy Moore	live by Steven Roys	Carl, I'm not sure if you're still on, maybe a question for you, or a question we may have to look back into, Eddy. We can, I think we could jot that down, probably get back to you.
	Yeah, no, I know that's not an off the top of your head type answer, but I appreciate it. Thank you	Eddy Moore		
RH	Does this include residential battery storage?	Eddy Moore	live by Steven Roys	That is in the model. Residential battery storage, trying to remember if it got pulled into the medium; I know it's modeled. I'd have to double check if it's in the medium scenario. I know it's in the high scenario. I was gonna say, you know, I think in the future there may be some more. Today we don't have a ton of it online. So I think in the short term you probably don't see a lot of battery storage in there, but I'll have to go back and double check if it got captured in this medium scenario, or if it was just in the high scenario.

	But when you say you don't see a lot of it in the short term, is that that a program would not cost effectively implement it in the short term, or or are we counting battery storage that customers are voluntarily adding without a program or rebates or anything?	Eddy Moore	live by Steven Roys	A little bit of both. So I think we've, outside of the IRP, outside of this process, we've been doing some modeling on battery storage. I think one of the things we try to do is compare that to other DR programs, when it comes to cost effectiveness, when it comes to the number of people, number of customers that can participate, and right now we have low adoption of batteries. I think the level of incentive it would take to get customers to get batteries then makes it cost ineffective for us to do that. So we have a model working and continue to update that model as, as we see adoption change, and if we see, you know, big growth in batteries or big price decreases in batteries, things of that nature, we'll certainly update it and reprioritize that in our portfolio. But on the other hand, you know, there's other DR measures that are more cost effective, and so they get sort of higher priority because they're available today. They're, you know, a little bit more proven out things of that nature. If that makes sense.
	Well, the reason I was asking, and I know this doesn't, you know, yield a kind of a final answer, it's not a robust analysis, but my understanding is that for people who are adopting solar for whatever reason, the battery attachment rates are getting above 40% out there in the market.	Eddy Moore	live by Stewart Ramsay	Eddy, one of the things that, so I got a note from the folks in the back office, and one of the things they point out is that it is captured in the load forecast, and so far as it's reflected in the EIA's annual energy outlook, so they are starting to take that growth in the combined combined residential solar battery. So it's, it's at least in the forecast in that that element of it.
	Well, so but here we're talking about DR potential, and in the recent Duke Energy Efficiency Collaborative, you know, they were breaking down what impact at the per household level different DR measures had. I just remember the, you know, their ability to get demand reduction at a from HVAC was somewhere around a kilowatt per home. But with batteries it was over four, and so it just suggested to me that it, it could be a significant contribution if you have people just adopting it on their own anyway.	Eddy Moore	live by Steven Roys	Yeah, and I think it's what we've looked at it. You know, we actually track battery installations, especially with solar, and when you just look at the number, you're right that the savings are definitely higher, maybe four times or even more higher per battery. But when we look at thermostats, we have 10s of 1000s, you know, I don't know if we have an exact count, but probably around 40 or 50,000 plus smart thermostats in our service territory of 180,000 customers, we have less than 1000 batteries, so we just have a significant amount of smart thermostats. So, focusing on something like that, where you know it's, it's easier to get four customers today on a smart thermostat program than it is to get one, you know, to create a program to get one battery customer. So, we are taking into consideration as we get more batteries, but I think the number now is low, but I know it's in these scenarios that was a consideration in the low, medium, and high scenarios. I just need to double check on exactly which one, which scenarios have it savings initiative with batteries included.

	Thank you.	Eddy Moore		
	BREAK			
3	Has the team considered Utility-Controlled Distributed Storage (UCD-BESS) programs like Base Power in Texas? Unlike conventional demand response, these storage assets are never controlled by the member, have the performance of grid-scale storage but with the added DSM value.	Rourke Pattullo	written by Matthew Moody	Santee Cooper is currently researching different energy storage programs, such as you mentioned Base Power as well as other energy storage programs such as bring your own battery programs.
RH	How sensitive is this calculation to the makeup of the generation fleet, and the reason I'm asking is to understand whether retirement of Winyah would significantly change the numbers.	Eddy Moore	live by Joel Dison	That's a great question, Eddy. And let me see if I can try to explain how it would actually work. We actually did run a sensitivity with Winyah out and with the Canadys resources in, and what happens with that is that the metric itself, the starting point metric actually drops precipitously. And because the starting point metric drops precipitously, then that makes it more difficult for each of the solar tranches to to be able to get back to that much, much lower index. So, let's see if I can explain it this way. If I have a lower starting point, then it takes more to actually get back to that lower starting point, even though I have a much more flexible system. So, yes, Canadys will, will make it much easier for you to to integrate solar, but on an incremental basis it doesn't really change what is needed by tranche, if that makes. So, the way we've kind of approached this is to say this is our benchmark, when we throw Canadys into the mix, Canadys will be able to meet this without any problem whatsoever. And so, even if we put this additional operating reserve requirement in there, you'll have it kind of intrinsically, because Canadys is there. But if we to try to run this again, on a system without Winyah and with Canadys, we believe we would get similar results, because we would be starting from a completely different starting point. Does that make sense, Eddy?

	You're saying that the the increase from 1000 to 15 and 2000 still require the same incremental operating reserves to be added as even without; I guess you know, right now you don't have a, you're looking at a situation where you could have both Winyah and Canadys, though. Yeah, that would be this is 2030 and it doesn't have it yet, but you know that has it, it's it's been an issue in the certificate case that if you, if the full load doesn't materialize, and if the coal plants stay online, you'll have a much higher reserve margin. I realize this is not a reserve margin calculation, but I mean, in that situation there would be a lot of generation available. I'll say that.	Eddy Moore	live by Joel Dison	Yep, so we let me see if I can try it a different way. I understand what you're saying, and if, and if Santee Cooper wants us to go back and take a harder look at kind of a post Winyah, or even a Winyah plus Canadys, we could do that right. But the sensitivity we ran was to say, if we consider this to be the starting point, if we consider this to be the benchmark -- let's just use, let's just focus on the CBS One stress index column -- if we assume 54 is the benchmark, what what happens if in that no solar, no battery case, I remove Winyah and I add Canadys, and then what happens if I kind of start adding some of the solar. What happens is, just having Canadys in there, lowers that starting point. And so because the starting point is lower, all of this is kind of a delta analysis, and we said, more than likely, and we did, we didn't actually have the opportunity to run like completely repeat the study with Canadys in there, but we said we have no doubt in our minds that if we have the operating reserve requirements, i we know for a fact that Canadys will be able to meet those requirements. In much the same way we would say a battery could meet those requirements, we would say Canadys can meet those requirements. So the plan is is to put those requirements into the expansion plan model, and I'm speaking for Santee Cooper, somebody from there can can qualify or correct if I'm saying this incorrectly, they'll put those requirements in there. Canadys will be one of the resources necessary to be that can be added to the system to do that. Batteries can do that. Reciprocating engines could do that. Aeroderivatives could do that. Does that make sense?
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			live by Clay Settle	Well, Joel, is it fair to say, I think, from from our perspective, the sensitivity we just wanted to see a sensitivity for the potential impact, but if what we're, what we've got here is the operating reserves requirements for different levels of solar, and then it's, it's informing what we need for the system, and then we would naturally be able to sign the most cost-effective resources to meet those obligations, or operating reserve requirements. And to your point, with if, Winyah was taken out, we would have a much more flexible system with Canadys. Or, if Winyah stays in and Canadys is in, we still would have a much more flexible system, because we would have an efficient gas unit to help meet these operating reserves. So, to my perspective, that's why we do these studies every three years for triennials, because as the system change changes, and as, as the assumptions change, we want to relook at this assumption for future IRPs. So that's that's one of the reasons we relooked at this for the 2026 triennial to since the we've added a lot of flexible generation in the near term plan, and it's important to see how that's going to impact this assumption.
4	Are all of these flex events just concerned with not being able to meet the 5 minute balancing constraint?	Elizabeth Sullivan	live by Joel Dison	So, there's a, there's a question in the Q&A that says, are all of these flex events just concerned with not being able to meet the five minute balancing constraint. I want to make sure I understand that correctly. The way I assume the question is worded, the way I assume it's intended, is are we considering capacity shortfalls, no. These are these do not represent capacity shortfalls, they represent kind of, if you will, a system that is too slow to ramp to the to the projected load in the next five-minute period. So all the flex events that we identify are flex events where the system was unable, either because all of the resources were loaded up, and there just wasn't enough, there wasn't enough online resources, and you might have some CTs offline that you could bring online, but you couldn't bring them online in a five minute period, so you would have a five minute shortfall, even though you didn't have a capacity shortfall. And so it's identifying all of those, and it's looking at the and the CPS stress index is not just looking at did I have a shortfall, but how big was that shortfall. So Elizabeth, I hope that answered the question.

	Thank you. The question is, then, when you have a solar flex event, does your model freeze the load that it needs to get to, and look for resources inside of that five minutes; or does it also look at a load change that occurs simultaneously due to the solar event. In other words, a summer storm, for example, comes through, and the rain hits the load instantaneously drops as well due to the cooling effect of that rain.	Elizabeth Sullivan	live by Joel Dison	We're looking at both of those.
	Okay, so you have a model for how it drops in those some of those flex events	Elizabeth Sullivan	live by Joel Dison	Our model looks at both load variation and and solar variation from one five minute period to the next five minute period. Now it, how it does that, there is some randomness to how it's done, but it does look at those, and so it's netting out any change in load variation with the change in solar variation
	Okay. Thank you.	Elizabeth Sullivan		
5	Does the Southeast Energy Exchange Market offer an option here? Not sure how that could be taken into account, given its a 15 minute market, just wondering how that might mitigate flex events? [Read aloud by Stewart Ramsay]	Katie Southworth	live by Joel Dison	Yeah, I think Katie, I think you, you hit the nail on the head. It is not a five minute market, it's a 15 minute market. And so it would not, it would not have the flexibility needed to be able to address a five minute shortfall. Obviously, if from an operational standpoint, if you projected a shortfall over in the next 15 minutes, obviously, that would be a resource available to you, but we were, but our study was only looking from one five minute period to the next five minute period, and that market is not flexible within that period.
			live by Stewart Ramsay	Your study was really just trying to model, you know, get as close to the actual operating conditions as possible, make sure there were enough resources available in the system to deal with operational ramps, not forecasted ramps.

6	Where is the CSP index defined? You are talking about the control performance standard right? [Read aloud by Stewart Ramsay]	Bradley Heath	live by Joel Dison	Yes. All right, so it's a good question. It was a question that we kind of felt like was a little too detailed. We have a, we have kind of a, in the, in the solar integration report, which Clay, I assume, is going to be filed with the IRP, there is an appendix in there that defines how that index is calculated. It is calculated if you, if you know very much about the control performance standard, then you know from the NERC standard how the CPS one is calculated, and we are calculating something very similar to it, but because we don't have the ability to model frequency variations, we have to make some assumptions in how a megawatt variation is affecting frequency, and all of that is defined in, in that document that should be filed with the IRP; and I don't want to speak for them, but I think that is the case, right?
			live by Clay Settle	Yeah, that's correct. Consistent with a 23 RP, it'll be an attachment that we file with the IRP.
RH	Sorry, y'all. I thought that you know a significant share of delivered coal prices are the diesel fuel, and it just seems if that chart was delivered coal versus mine mouth, that there might be more of a spread in high, medium and low.	Eddy Moore	live by Bob Davis	The delivery costs, the diesel fuel prices are rolled up into the CSX rail car or rail delivery charges that we do add. The distribution of different coal types from Illinois and the Appalachian basins to Winyah and/or Cross is, is that CSX rail cost is largely the same across the low, medium, and high cases. The fuel blending, there's some minor differences between Winyah and Cross also, but they're relatively consistent. So, the differences you see here, these are the delivered prices to Cross three and four. That's the predominant coal that's used by Santee Cooper, is burned in the Cross three and four units. That's why we show that, but the CSX cost is largely the same under those, is exactly the same, excuse me, under those three price scenarios for low, medium, high.
	I guess that's kind of what I was asking, whether the fact that diesel prices could be higher or lower would cause a spread in the higher low.	Eddy Moore	live by Bob Davis	We do reflect that in there, Eddy. The change -- I apologize for not catching your question earlier -- we do reflect the change in the diesel fuel price as part of the CSX rail cost for these different scenarios.
	Okay. Thank you.	Eddy Moore		

7	Might the CO2 pricing scenario work as a proxy to estimate the impact of Santee’s large customer clean energy goals and/or local governments that have passed clean energy standards or carbon reduction goals (and the like)? [Read aloud by Stewart Ramsay]	Katie Southworth	live by Bob Davis	That is exactly why we run the cases; to demonstrate how different portfolios might respond if a social cost of carbon were imposed on various portfolio decisions. I'm not sure that I would designate it explicitly for the large customer clean energy goals, but definitely for local and or state government requirements for clean energy standards. It's a good proxy.
8	In addition to increased costs of gas units are you taking into consideration, or somehow considering, timelines/delays in terms of COD for the gas units? I’m hearing its a persistent problem, units are coming online at slower pace in other markets, potentially 8-10 years after initial commitments/ authorization to build. [Read aloud by Stewart Ramsay]	Katie Southworth	live by Clay Settle	Yeah, thanks for the question, Katie. The answer is yes. We're taking that into consideration, and hopefully this slide explains that. So this slide represents the first year resources are available to the model for selection. And so Santee Cooper utilizes our industry knowledge with our consultants, Sergeant Lundy, who helped develop the resource assumptions what we're seeing in the market, all to influence these first year available assumption dates. So like for example, to your point, a combined cycle is not available to the model until 2035 for selection based on the time it takes to to implement a combined cycle if we haven't started implementation yet. And so, if we started working on implementing one next year, it would likely be, you know, 2034/35 when it, when it could come online. So we just kind of walk through the different resource types and look at each resource has its own unique COD based on all those different factors, and we realized, like battery energy storage, for example, there may be some opportunities where they could potentially come on earlier. But for the purposes of the IRP, we wanted to use a, you know, consistent assumptions between peakers; but then also have a have an assumption that that was generally representative of like if you were to start a project after the IRP, when could it come online. And so for solar battery turbines or air derivative turbines and reciprocating engines, those are all available to the model in 2031. Onshore wind is available all in 2034, that's informed by the wind study Santee Cooper had performed, and then you know, assuming that the due diligence and the implementation, if wind is proven to be a selected through the IRP combined cycles and large frame congestion turbines like H class or F class CTs, those are available 2035.

				Long duration energy storage is available in 2037. Offshore wind 2040. SMRs 2040. And then large nuclear 2040; and again the large nuclear is assuming building a new nuclear facility that that you're just you know starting from scratch and the 2040 date does that. I hope that answered your question Katie please let me know if it didn't.
	Hi Katie Southworth with Corporate Energy Virgin Association. Thanks, Clay. Yeah, that really, this is this is exactly what I wanted to see. So I just want to comment with it's like we're looking eight to 10 years, you're on the optimistic end, I would say just my personal opinion, a little bit of a seems like an optimistic end there for the CTCC. Just based on what I'm hearing across the country, you're also competing not only with utilities but other entities at the moment. And then the long duration energy storage, that to me seems a little bit pessimistic, and might make you know what it sounds like, you've got some third party industry Sergeant Lundy and others that you're looking at there, but the long duration energy storage, that's those I don't, I could, you know, subject to check, but looking out in California, or out west, I think Pacific Corp, I think they've, they've brought them on much faster, so yeah, that just the long duration energy storage actually is what sticks out to me now, just, just, just, that's feedback. Thanks.	Katie Southworth	live by Clay Settle	Well, thanks for that. And if there's, if you've got any information, Katie, you want to provide for us to consider this based, this is based on our research working with our R&D team and other other experts, where we think is reasonable, but we're happy to review any information.
	Thanks. Yeah, I mean, it's kind of popped up. It's just a trend, you know, in the last couple of years, so it's, you know, it's like, like all things sort of evolving pretty quickly. But I'll get those case studies and send them to you. Cheers.	Katie Southworth	live by Bob Davis	And Katie, I'd also add to that what Clay was saying, we are modeling eight hour battery, and technically you could compose four and eight hour batteries combined to create as long duration as you need. What we're simulating here for this analysis is looking more at the form battery, the iron air battery, anticipating that recognizing there's some pilot cases that are going in now, but considering what it would take to actually get one built after we get through some of these, these pilot and demo cases, and get into true, more conventional, utility development of those assets.
	Understood. Thank you.	Katie Southworth	live by Clay Settle	It's a good point, Bob. Thanks.

9	Will Santee Cooper be publishing an updated PURPA avoided cost table by year, and if so, where can stakeholders find it? [Read aloud by Stewart Ramsay]	Paul Dort	live by Clay Settle	We do have a avoided cost, I don't recall if we published that in our IRP, and or where that's posted.
			live by Bob Davis	Yeah, we've never published that in the IRP process, Clay. It is separately produced and developed and published by Santa Huber.
			live by Stewart Ramsay	Is that something that we could get a copy or a link put on to the IRP site so people can find it.
			live by Clay Settle	Yeah, we could do that, Stewart.
10	Just posting here to express my gratitude for hosting this stakeholder session. Cheers!	Katie Southworth	written by Ellie Gallagher	Thank you Katie, and thank you for attending and providing feedback.
11	Yes, useful, thank you!	Eddy Moore	live by Stewart Ramsay	Thanks, Eddy. Appreciate the feedback.